UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/619,264	07/19/00	KUMAR	A 60237

023735
DIGIMARC CORPORATION
19652 SW 72ND AVENUE
SUITE 100
TUALATIN OR 97062

WM31/0831

EXAMINER	
MILLER, M	
ART UNIT	**PAPER NUMBER**
2623	3

DATE MAILED: 08/31/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No.	Applicant(s)	
	09/619,264	KUMAR, ARUNA B.	
	Examiner	Art Unit	
	Martin E Miller	2623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 1-6 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claimed invention is directed to a mere arrangement of printed matter. The claim language states a "paper medium carrying a steganographic message", which the Examiner is interpreting as printed matter.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Gasper et al., U.S. 5,752,152 (hereinafter Gasper).

As per claim 1, Gasper teaches:

A paper medium carrying a steganographic message (microdots are... not visible to the unaided eye, Abstract), the steganographic message including printer control information related to the paper medium (magnified or demagnified, Col. 13, ll. 17-18) that is readable by a machine (document copier can detect...an algorithm in the copier can determine..., col. 13, ll. 7-8, and 15) from an image captured of at least a portion (sub-section, col. 12, ll. 23-29) of the paper

medium, and that is operable to control a printer so as to optimize print quality (image enhancement algorithm to improve sharpness, e.g. addition of pixels to fill gaps, etc., col. 13, ll. 19-20) for the paper medium.

As per claim 2,

wherein the printer control information includes one or more identifiers that are used to look up printer control information used to optimize printer operation for the paper medium. (col. 13, ll. 18-20, also col. 3, ll. 28-30, and col. 4, l. 55, these area teach that the control means must inherently access some data that allows for deactivation of the printer).

As per claim 3,

wherein the printer control information includes paper characteristics information of the paper medium (magnified or demagnified copy, col. 13, ll. 17-18)

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gasper as applied above in rejecting claim 1 above, further in view of Zhao et al., US 6243480B1 (hereinafter "Zhao").

As per claim 4, Gasper does not specifically teach digital watermarks as his steganographic message. However, Zhao teaches:

wherein the steganographic message is encoded in a digital water mark (Zhao, col. 4, ll. 60-61).

It would have been obvious to utilize the digital watermarking and copy prevention teachings of Zhao in combination with the suggestions of Gasper to utilize hidden data patterns to control printing of a scanned image in accordance with the watermark agent to provide signals to an output device.

As per claim 5, Zhao and Gasper teaches:

wherein the digital watermark is embedded on the paper medium using invisible ink. (Official Notice-invisible ink is well-known in the steganographic arts). Digital watermarking texts teach that uses of invisible inks were well known until the invention of universal ink developers.

As per claim 6, Zhao teaches that a digital watermark (col. 4, ll. 58-63, col. 5, ll. 45-49) can be put in to the document, but does not specifically state that the watermark is repeated throughout the document. However, Gasper teaches that the pattern is repeated throughout at least a portion of the paper medium.

7. Claims 7-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhao et al., US 6243480B1 (hereinafter "Zhao") and, further in view of Gasper.

As per claim 7, Zhao teaches:

a steganographic decoder (Abstract, fig. 1, element 109, col. 7, ll. 33-35) for reading a steganographic message from the image of the print media, the message including control information (col. 4, ll.58-60, col. 14, ll. 7-13, col. 17, ll. 7-9 and 13-17); The active watermarks

as taught by Zhao are watermarks that execute program codes that operate on the host computer when the watermark is read.

a printer control unit in communication with the decoder for receiving (abstract, col. 17, ll. 13-17). Zhao does not specifically teach that the active watermark programs provide printer optimization information nor does Zhao teach an image sensor. Although teaches that the system operates on digital images. Obviously the images can be digitized representations of paper documents.

Gasper teaches:

an image sensor for capturing an image of print media (scanner, fig. 2, element 22, and col. 5, ll. 9-14) ;

the printer information and using the information to optimize the printer operation for the print media(col. 13, ll. 18-20). Gasper teaches that the microdots provide a message based upon their arrangement with in the image. By analyzing the image data Gasper's system is able to ascertain that the image was magnified or demagnified. An algorithm is then run that enhances this image. It is obvious that such an algorithm could change the operation of the printer and does control the manner in which the scanned image is presented in hard copy. Zhao suggests that scanners, copiers and printers (col. 19, ll. 44-45) could have watermark decoders that provide operational instructions to the device and Gasper suggests that the embedded message in an paper image once scanned can be used to operate software hosted on a device that will alter the printed presentation of the image.

It would have been obvious to one of ordinary skill in the art to take the suggestions of Zhao and Gasper to utilize the active watermarks of Zhao to implement the image enhancement

features of Gasper to provide an enhanced image in addtion to having been afforded robust digital watermark copyright protection.

As per claim 8, Zhao teaches:

wherein the image sensor is part of a scanning subsystem in a multifunction device (copier, col. 17, l. 13).

As per claim 9, Zhao does not specifically teach a CCD array. However, Gasper teaches:

wherein the image sensor comprises a CCD array. (col. 11, ll. 21-22, electro-optic scanning device, CCDs are inherently electro-optic devices.)

As per claim 10, Zhao teaches that his active watermarks contain program code (abstract) and it is well-known that computers utilize look up tables to access data more efficiently particularly when minimal code is required. However, Zhao does not specifically teach the following limitation. However, Gasper does:

wherein the printer control unit uses the printer control information to look up operating parameters used to control the operation of a printer. (col. 13, ll. 18-20, also col. 3, ll. 28-30, and col. 4, l. 55, these area teach that the control means must obviously access some data that allows for deactivation of the printer).

As per claim 11, Gasper teaches:

including a computer connected to a printer; wherein the decoder comprises program code executing on the computer (col. 4, ll. 51-57).

As per claim 12, Zhao teaches:

wherein the decoder comprises a watermark decoder (reader, col. 7, ll. 32-35).

As per claim 13, it recites substantially the same limitations as claim 7 above and analogous remarks apply.

As per claim 14, Zhao teaches wherein the steganographically decoding includes decoding the message from a watermark embedded in the print media (col. 14, ll. 24-35).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following U.S. patents refer to controlling output of digital documents: Russell et al, 5905248, Asgharzadeh et al., 5590246, Chang, 6256398, Reddersen et al., 6176429, and Leighton, 5664018, Rhoads, 6252963.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin E Miller whose telephone number is 703-306-9134. The examiner can normally be reached on Monday-Friday, 9 am- 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on 730-308-6604. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4700.

mem
August 27, 2001

AMELIA M. AU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600